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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,770	06/25/2001	Howard E. Purdum	204026US68PC	7927
22850	7590	11/20/2003	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			KIM, SUN U	
1940 DUKE STREET			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			1723	

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/805,770	Applicant(s) PURDUM, HOWARD E.	
	Examiner John Kim	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-22 and 24-41 is/are pending in the application.
- 4a) Of the above claim(s) 26-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-22, 24, 25 and 41 is/are rejected.
- 7) ☒ Claim(s) 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

1. Information disclosure statements submitted on 8/1/03 and 10/10/03 have been considered by the examiner.
2. The drawings were received on 7/16/03. These drawings are acceptable.
3. Claims 26-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 7.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 14-22 and 24-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 is indefinite for failing to particularly point out what is a structural connection among dialysis material and the rest of structural elements.
6. Claims 1, 5, 7, 9, 14-15, 17-18, 22 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,435,155 (hereinafter referred to as Paradis) in view of U.S. Patent No. 4,156,645 (hereinafter referred to as Bray). Paradis teaches a freeze concentration method comprising the step of cooling material including polluted water to a temperature at or below the melting point e.g. -1.5 degree Celsius in a tube and sheet heat exchanger, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic generator, collecting solid phase e.g. crystals with solid-liquid separation method including conveyor belts, gravity draining, centrifugal drive (see figures 1-6b, 8; col. 21, line 62 – col. 23, line 1; col. 25, line 55 – col. 26, line 41). Paradis teaches that freeze concentration method includes water desalination wherein solvent is a desired product (see col. 21, line 62 – col. 22,

line 12). Claims 1, 5, 7, 9, 14-15, 17-18, 22 and 41 essentially differ from the method and apparatus of Paradis in reciting the step of removing salts from the material across a dialysis membrane. Bray teaches that sea water is converted to fresh water by a loose semi-permeable membrane (see abstract). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the step of removing salts from the material through a dialysis membrane prior to the freeze concentrating treated water in the method and apparatus of Paradis to improve the purity of water with removal of salts.

7. Claims 10-13 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradis in view of Bray as applied to claims 1 and 14 above, and further in view of U.S. Patent No. 5,966,966 (hereinafter referred to as Botsaris et al). Paradis in view of Bray teaches a freeze concentration method and apparatus as described in above paragraph. Claims 10-13 and 24-25 essentially differ from the method and apparatus of Paradis in view of Bray in reciting monitoring concentration of one component by sensing the resistivity or viscosity or optical properties of the product. Botsaris et al teach a freeze concentration method comprising the step of cooling material including effluent from a paper bleaching process to a temperature at or below the melting point in a tube and sheet nucleator heat exchanger, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic generator and collecting solid phase e.g. crystals with a separator and sensing ice crystals with an ice crystal size detector to detect the size distribution of the ice in crystallizer body by obviously detecting resistivity, viscosity or optical properties of ice crystals and passing this information to a controller (138) to control ultrasonic amplifier (142) to obtain the largest ice crystals in size as possible (see figures 1-2; col. 2, line 45 – col. 5, line 67, particularly col. 5, line 55 – col. 6, line 4). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made to monitor the concentration of the component with ice crystal size detector in the method and apparatus of Paradis in view of Bray to control and obtain the largest ice crystals in size as possible.

8. Claims 1-4, 7, 14-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/20420 in view of Paradis and Bray. WO 92/20420 teaches method comprising the step of cooling material to a temperature at or below the melting point by flowing the material between two concentric tube ultrasonic resonators wherein coolant is pumped through the inner tube and the outer tube is cooled by appropriate means such that inner tube surface and outer tube surface are inherent sonified cooling plates, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic resonator wherein source of ultrasound may be directly or indirectly connected through the walls of a container holding liquid (see figures 1b, 2; abstract; pages 11-16, 18-19; particularly, page 18, line 14 – page 19, line 3). Claims 1-4, 7, 14-19 and 22 essentially differ from the method and apparatus of WO 92/20420 in reciting the step of removing salts from the material by dialysis material and collecting solid phase with a centrifuge. Bray teaches that sea water is converted to fresh water by a loose semi-permeable membrane (see abstract). Paradis teaches the freeze concentration method comprising the step of collecting solid phase e.g. crystals with solid-liquid separation method including conveyor belts, gravity draining, centrifugal drive (see figures 1-6b, 8; col. 25, line 55 – col. 26, line 41). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the step of removing salts from the material through a dialysis membrane prior to the freeze concentrating treated water in the method and apparatus of WO

92/20420 to improve the purity of water with removal of salts and include the step of collecting crystals via a centrifuge in the method and apparatus of WO 92/20420 to separate out the crystals from liquids and obtain pure product.

9. Claims 6 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/20420 in view of Paradis and Bray as applied to claim 1 and 14 above, and further in view of U.S. Patent No. 4,479,989 (hereinafter referred to as Mahal). Claims 6 and 20-21 essentially differ from the method and apparatus of WO 92/20420 in view of Paradis and Bray in reciting a thin walled flexible container comprising a filter element for holding the material. Mahal teaches a flexible film container having high degree of gas transmission e.g. filtering element and having excellent low temperature properties as well as capability for radiation sterilization (see col. 2, lines 4-16, 55-57; col. 11, line 64 – col. 12, line 4). It would have been obvious to a person of ordinary skill in the art to hold material in a thin-walled flexible container having low temperature properties as well as capability for radiation sterilization in the method of WO 92/20420 in view of Paradis and Bray for applying the steps of cooling and application of ultrasonic energy through the wall of the container holding the material.

10. Claim 40 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Applicant's arguments with respect to claims 1-7, 9-22, 24-25 and 40-41 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. This application contains claims 26-39 drawn to an invention nonelected with traverse in Paper No. 7. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is (703) 308-2350. The examiner can normally be reached on weekdays from 7:00 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for official response is (703) 872-9306.


When sending a draft amendment by fax, please mark the paper as "DRAFT"; otherwise, mark the paper "OFFICIAL". This will expedite the processing of the paper.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.


John Kim
Primary Examiner
Art Unit 1723

J. Kim
November 14, 2003